

REMARKS

By the above actions, claims 1, 5, 16 and 17 have been amended and claims 2 and 3 having been cancelled, the features of claims 2 and 3 now being found in claims 1 and 16 and the dependency of claims 5 and 17 being changed to claim 1 in view of the cancellation of claim 2 from which they had previously depended. In view of these actions and the following remarks, further consideration of this application is now requested.

Claims 1, 2, 5, 7, 9, 16, 20, and 21 have again been rejected under 35 USC § 103 based upon the German reference to Popp when viewed in combination with the patent to Zyl, while the other claims have again been rejected based on this combination of references when viewed in further combination with one of the disclosures of Yasui, Bruccoleri et al., Henson, Takamuki, Haynes and Brennen et al. for the reasons noted at length by the Examiner in his Action. Likewise, applicant continues to believe that these rejections are inappropriate and should be withdrawn since the rejection is based at least in part on erroneous assumptions and incorrect interpretations.

Popp only discloses an electrical transducer in which **the processor circuit is operated at a low clock frequency** to reduce the power consumption of the processor circuit. Popp does **not** disclose that the processor should be shifted into a sleep mode and on page 12 of his Action, the Examiner states his opinion that this fact “does not indicate that there is no need to shift the processor into a sleep mode” because “shifting the processor into a sleep mode would provide a much lower amount of current consumption. However, this assertion fails to take into consideration that going into a sleep mode would, at the same time, render inactive the analog/digital converter connected upstream and downstream of the processor circuit.

Additionally, on page 14 of the Office Action, the Examiner states that Popp indicates that the processor is only used to carry out corrective interventions on the analog transmission path and asserts that:

As shown in Fig. 1, the sensor “1” outputs the measured values during measurement and the processor “7” performs its corrections downstream *after the normal measurement has been completed.*

However, even though the processor merely carries out corrective interventions on the analog transmission path that does not mean that it is otherwise inactive. To the contrary, as noted by Examiner, the processor also exchanges digital data with an external communication unit. However, the Examiner incorrectly concludes that this digital data exchange is not during normal measurement and that the “communication is in order to transmit the measured data and therefore the normal measurement must have already been carried out.”

This conclusion is erroneous and based on an incorrect interpretation of what is disclosed by Popp because, as can be seen from Fig. 1, the sensor 1 determines the measured values and *at the same time* converts these parameters into corresponding analog signals. Furthermore, at the same time as the analog signal corresponding to the differential pressure dp is fed to the first input of the combinatorial circuit 6, this signal is also fed to the input of the analog/digital converter 5.3. Since *the values are measured continuously* by the sensor 1, there does not exist a time when the measurements “have been completed” as is clear from paragraph [003] of the English translation where the following is stated:

The invention is based on the objective of developing a measuring transducer of the initially cited type, the ***continuously delivered output signal of which*** is also able to follow rapid changes of the parameter to be measured ***without interruption***.

Thus, sensing of the differential pressure dp by the sensor 1, correction of the sensed value by the processor and outputting of the transformed load-independent current at the transducer interface 13 is the normal sensing operation of Popp’s transducer as is also reflected in the last sentence of paragraph [0010] of the English translation which states that “output current flowing through the two-wire line 14 *immediately follows* changes in the differential pressure dp .” If the processor were to be shifted into a sleep mode, it would be impossible for the processor to exchange digital data with an external communication unit because there would not be any data signals from the processor at the second entrance of the transducer interface 13. Likewise, no corrective interventions on the analog transmission path would be possible. That is, because the measuring transducer interface 13 combines the analog transmission path with the digital transmission path. If the microprocessor were to be in a sleep mode, such a combination would not be possible.

As for the Zyl patent, as noted in applicants' prior response, the transducer arrangement of this patent does not have an analog measurement signal transmission path. Furthermore, as can be seen from the description of column 2, lines 13-38, Zyl teaches two alternative manners for achieving low power consumption. One technique is analogous to that of Popp in that the clock rate of the processor is reduced, only in this case it is reduced proportionally to a power deficit condition, thus affecting processing speed in a similar manner to the technique of Popp. In the other technique, to which the Examiner makes reference, when a deficit in the ability of the power regulating circuit to meet the requirements of the processor is detected, the processor is shifted into a "sleep" mode in which program execution is halted."

In both of Zyl's alternatives, initiation of the power reduction or the sleep mode is triggered by the occurrence of a power deficit and the sleep mode is **not** triggered during normal operating conditions. In fact, Zyl notes in column 5, first full paragraph, that:

... the microprocessor must remain fully operative during "real time" operation such as the generation of a shot or pulse of acoustic energy, and sampling, analog to digital conversion and storage of the return echo signal....

This express teaching of Zyl dictates that the processor of Popp be active for enabling the output current flowing through the two-wire line 14 to immediately follow changes in the differential pressure dp as quoted from Popp above

Thus, a person of ordinary skill viewing the combined teaching of Popp and Zyl, would consider Zyl's alternative technique of adjusting clock speed as the logical modification to apply to Popp since it is related to and compatible with Popp's concept. However, even if Zyl's primary technique of sending the processor into an inactive sleep mode were to be applied to the process and device of Popp, it would not lead to the present invention but rather would result in a transducer having an analog transmission path and a digital path in which the digital path is operated at a low clock frequency during normal operation and **only if there is a power deficit**, would the processor be shifted into a sleep mode, the Examiner having ignored Zyl's disclosure of this condition as the triggering factor of use of his sleep mode. Moreover, since the processor is operated at a low clock frequency during normal operation in accordance with Popp's teachings, it is unlikely that the processor would need to be shifted into a sleep mode at all (keeping in mind that Zyl's alternative mode

in which the clock rate of the processor is reduced requires no sleep mode), and in any case, the time during which the processor would need to be shifted into the sleep mode would most certainly be much shorter than the time during which it is active, the direct opposite of the present invention.

Moreover, the Examiner's basis for combining of these references is fundamentally flawed not only because of his failure to consider that Zyl's sleep mode is not triggered during normal operating conditions, but rather is used only in the exceptional case of a power deficiency, but it also is flawed because of the errors in his assessment of Popp's disclosure as explained at length above. In this regard, the Examiner's attention is directed to column 6, first full paragraph in which Zyl notes that "the microprocessor must remain fully operative during "real time" operations, a teaching that dictates that the processor of Popp be active for enabling the output current flowing through the two-wire line 14 to immediately follow changes in the differential pressure dp without interruption as quoted above.

Thus, any combination of the Popp and Zyl references that is made in a manner consistent with their teachings could not lead one of ordinary skill to the applicants' claimed invention since Popp requires continuous sensing and output while Zyl teaches not to implement a sleep mode during such "real time" operations. Therefore, the rejections based in whole or in part on the combination of the Popp and Zyl references should be withdrawn and such action is hereby requested.

With respect to the subject matter of claims 2 and 3 which is now incorporated into claims 1 and 16, the relevance and applicability of the Yasui patent is questioned. Yasui does not disclose an electrical transducer nor does he teach use of an analog arithmetic circuit or active integrator as an actuator for a DC voltage signal or a direct current signal. Instead, Yasui discloses a reference voltage generating circuit for generating a stable reference voltage with low power consumption, which voltage is suitable for use in an integrated circuit. Furthermore, this reference voltage generating circuit is not disclosed as being connected to a processor circuit and to a scaling unit as claimed in the present application. Thus, not only does Yasui not teach or suggest applicants' use of an analog arithmetic circuit or active integrator as an actuator for a DC voltage signal or a direct current signal, but it also lacks a basis for connecting it as an actuator that is connected to both a processor circuit and

to a scaling unit. Accordingly, any application of the teachings of Yasui to Popp and Zyl in a manner consistent with his disclosure cannot result in the structure disclosed and claimed herein.

Relative to the rejection of claims 14 and 15, the Examiner's approach while very imaginative, bears no relationship to what is actually taught by Popp, Zyl and Brennan. In this regard, it is noted that the Examiner has failed to address any of the comments presented by applicants in their preceding response, which comments are hereby incorporated by reference for the sake of brevity, and which comments make it clear that Brennan et al. does not and cannot disclose or suggest the features of claims 14 and 15 because nothing in Brennan et al.'s disclosure could teach having one of three power supply terminals connected to a detector means so that, when a predetermined power supply voltage is applied to the connected one of the power supply terminals, the transducer automatically switches to three-wire operation, and the same is true for having the detector means connected to the processor circuit so as to cause the processor circuit to permanently shift into the awake mode during three-wire operation, as contrasted to the Examiner's proposed provision of a utility meter.

As for the other references relied upon secondarily by the Examiner with respect to claims 3, 4, 6, 8, 10-15, and 17, none of these references teach the concept of the present invention which distinguishes the present invention from that of Popp and Zyl. Therefore, even if it were obvious to apply their teachings to Popp and Zyl, the result could not lead to the presently claimed invention given the above noted reasons why these two references cannot lead to the present invention.

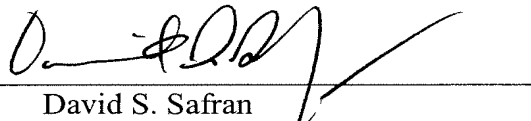
Accordingly, it is submitted that the Examiner the outstanding rejections based in whole or in part upon the combination of the Popp and Zyl references should now be withdrawn and such action is hereby requested.

The other newly cited references that have not applied by the Examiner have been taken into consideration. However, since these references were not found to be relevant enough by the Examiner to apply against the claims, no detailed comments thereon are believed to be warranted at this time.

While the present application is now believed to be in condition for allowance, should the Examiner find some issue to remain unresolved, or should any new issues arise, which

could be eliminated through discussions with applicant's representative, then the Examiner is invited to contact the undersigned by telephone in order that the further prosecution of this application can thereby be expedited.

Respectfully submitted,

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